Leybold

BOISWOOD
GAS AND LIQUID CONTROL TECHNOLOGIES
Pressure & Vacuum
Flow
Level & Temperature
Tube & Fittings
HVACR
Custom Services

VARODRY

Dry Screw Vacuum Pumps

Vacuum can be so...

easy

reliable

efficient

dry

VARODRY
Dry Screw Vacuum Pumps

Vacuum

...easy

OPTIMIZED SIMPLICITY

- Effortless installation - just connect to power and process
- Smoothless control - via VSD or regulation valves
- Seamless integration/retrofit - air cooled and easy accessability

...efficient

MINIMIZED TOTAL COST OF OWNERSHIP

- Low upfront investment
- Best-in-class power consumption
- Limited maintenance expenses
- No costs for cooling water and compressed air

MAXIMIZED PERFORMANCE

- Competitive at all pressures and over the complete pump life cycle
- Excellent vapor pumping capacity
- Quiet, low pitch sound level

can be so...

...dry

100% CLEAN VACUUM

- Completely oil-free
- Free of any oil emissions or oil leakages

...reliable

OPTIMIZED SYSTEM UPTIME

- Robust pump design, made for industrial applications
- Based on proven technology and an innovative belt drive
- Superior performance, even in humid and dusty applications
- Long-term operation with extended service intervals

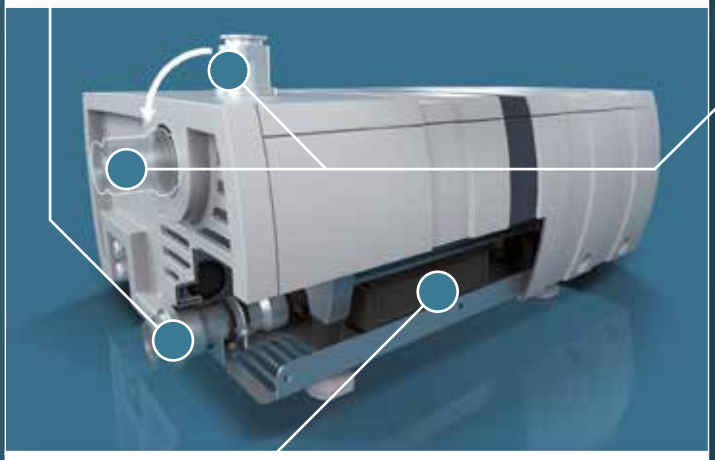
Utilizing the best today's technology has to offer.

Intake connection

- Horizontal or vertical orientation
- G-thread as standard
- ISO-KF, ISO-K or NPT thread as accessory

Exhaust connection

- G-thread as standard
- ISO-KF or NPT thread as accessory
- At lowest position, enabling condensate drainage



Built-in exhaust silencer

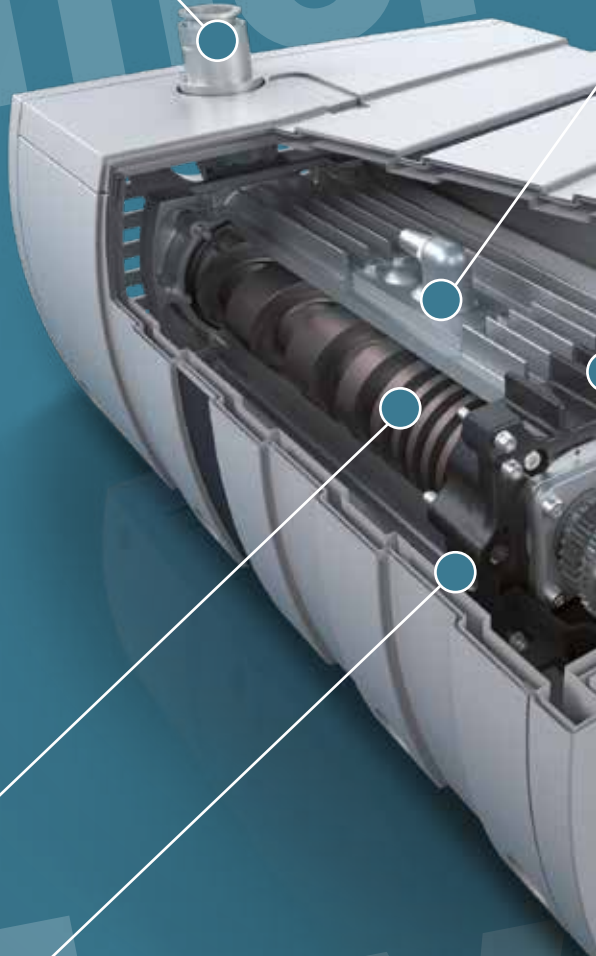
- Lowest noise emission
- Drainable design

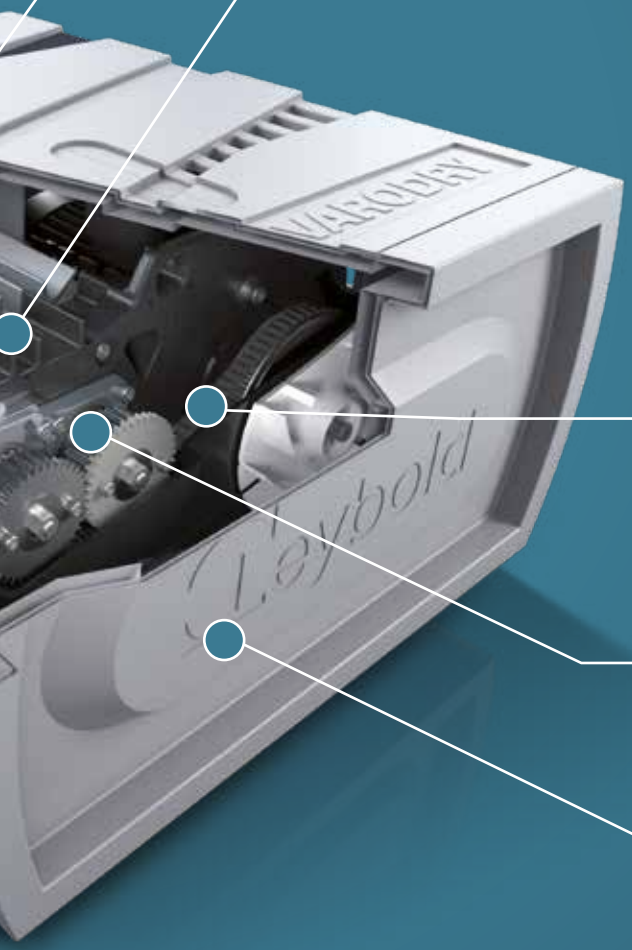
Anodized variable pitch rotor

- Benchmark for efficiency and robustness
- Lowest power demand in its class

Shaft seal / bearing protection

- "Self-cleaning" seal design
- Optional purge-gas system available
- No need for seal purge in most industrial applications



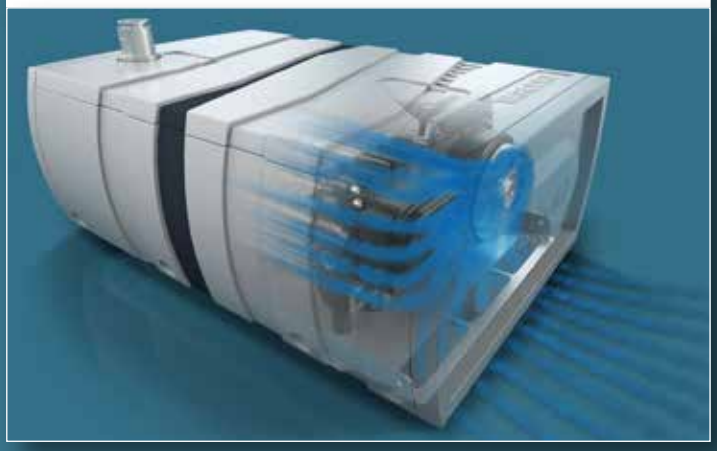


Gas-Ballast

- High vapor tolerance
- Supports dust handling

Air-cooled design

- Low operation cost
- Simple integration into mobile systems



Innovative belt-drive

- Provides synchronization and transmission
- Based on proven, long-life technology
- Easy to maintain via the partly removable enclosure
- No need for gear lubrication

Innovative bearing technology

- Most robust hybrid bearing design
- Life-time grease lubricated
- No need for oil exchange

Enclosure

- Integrated noise dampening
- Can be partly removed for convenient pump access
- Clean and sleek design

VARODRY

easy - efficient - reliable - dry

Eliminate process inefficiencies caused by vacuum.

The new VARODRY vacuum pump series is designed and produced by Leybold, in Germany specifically for industrial processes. Give yourself one less headache, with VARODRY vacuum can be easy, efficient, reliable and dry.

"Our motivation was to develop the most energy efficient industrial dry pump"

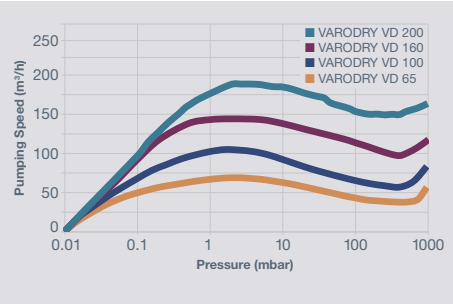
Dirk Schiller, Head of engineering

Efficient pumping

The VARODRY rotor design is optimized to provide a best-in-class efficiency.

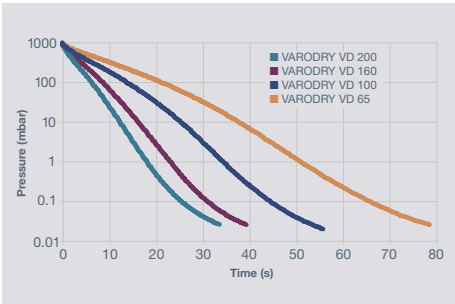
Pumping speed

The VARODRY provides a competitive pumping speed over the complete pressure range and a low end-pressure of < 0.01 mbar. It can operate continuously at any inlet pressure.



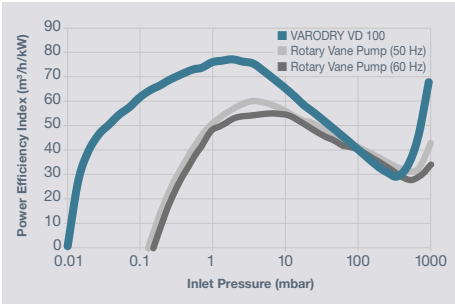
Pump-down time (100 l chamber)

The VARODRY provides fast pump-down down to the 10^{-2} mbar range.



Power efficiency index

The effective pumping speed generated per consumed power is a market benchmark for industrial dry pumps.



The VARODRY is optimized for the challenges found in many industrial applications:

- **Repeated and fast cycling:**
  The VARODRY offers a very quick pump down. The pump tolerates atmospheric pressure shocks and repeated evacuation cycles.
- **Dust / particle handling:**
  The rotor screw principle and anodization offers the best performance to handle fine, dry dust particles. In the case of large dust amounts, a wide filter portfolio is available.
- **Vapor handling:**
  Due to its optimized temperature profile and the built-in gas-ballast, the VARODRY offers a high vapor tolerance, avoiding internal condensation.
- **Reactive gas handling:**
  Often vapors (e.g. hydrocarbons) tend to react inside hot dry pumps and built-up internal coatings which can cause pump seizing. The internal temperature profile virtually eliminates this risk.
- **Liquid handling:**
  The VARODRY can handle droplets or even liquid slugs as the liquids can flow freely out of the pump.

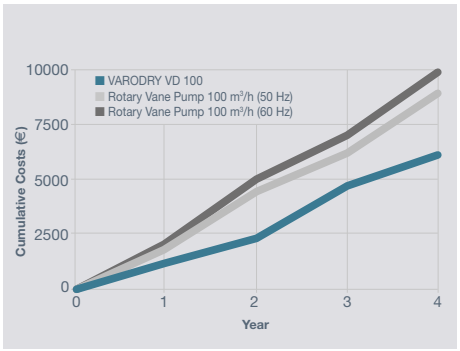
Simple parts, less maintenance

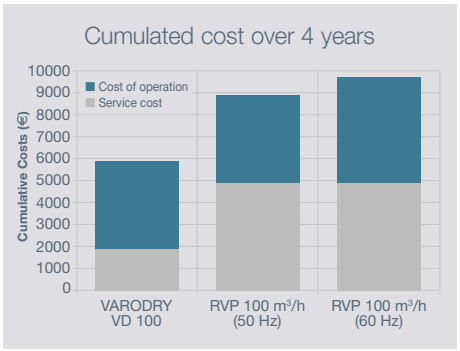
VARODRY easily improves the efficiency of your machines.

Operational costs

VARODRY is fully air-cooled and oil free. That results in the fact that the VARODRY only consumes electricity. You will never experience any extra costs for cooling water supply or oil/oil filter exchange and disposal. Additionally, its low power consumption offers you significant energy savings.
The Total Cost of Ownership savings offered by VARODRY are a market benchmark for a wide range of demanding applications, expecially where standard pumps require a lot of maintenance.

Total Cost of Ownership Example: Composites (wind power plant)





Compared with an oil-sealed rotary vane pump the VARODRY VD 100 will save > 650 EUR operational costs per year!

"VARODRY – the easy, efficient, reliable and dry solution for your processes"

Uwe Zöllig, Business Development Manager Industrial Vacuum

User Maintenance

The belt can easily be exchanged by you, in less than 30 minutes. The partly removable enclosure makes this really convenient. The belt exchange interval depends on the individual application, typically it is one year. Belt exchange kits and maintenance tools are available for you.

Furthermore, we offer you solutions for multiple pump control via ECOntrol 6 V/16 V or ELEC CAB. Standardized combinations with RUVAC roots blowers are also available.

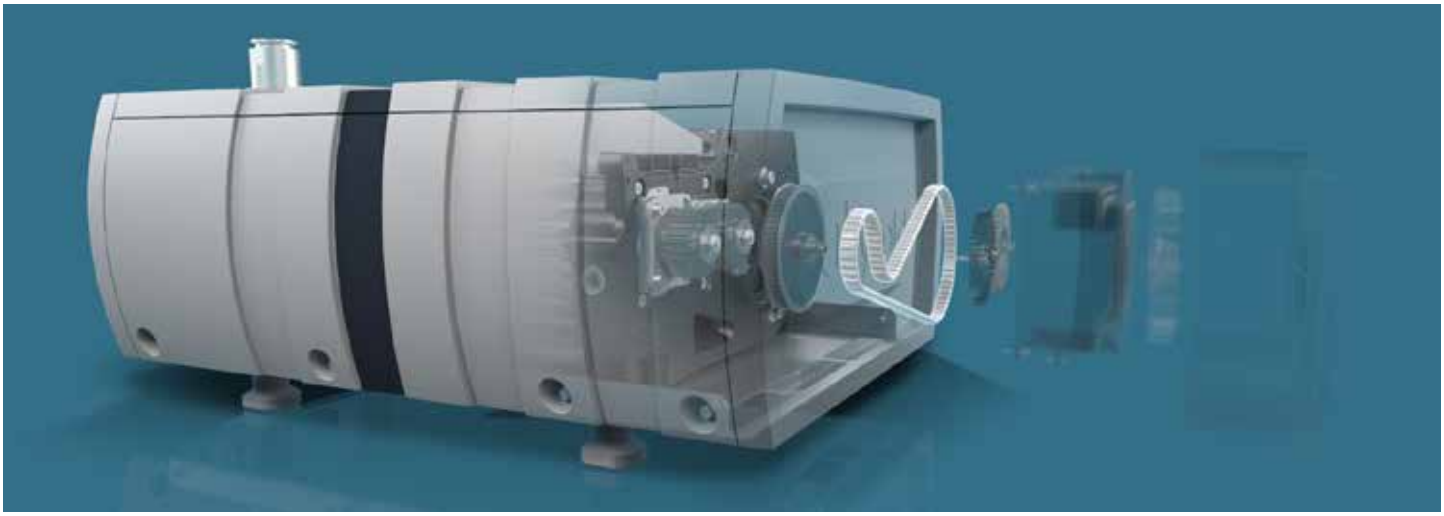
VARODRY reduces your maintenance and service requirements

With only two wearing parts (belt and bearings), only minimal efforts are required to keep your pump running at peak performance. At the same moment, the uptime of your facility will be strongly improved.

Leybold Service

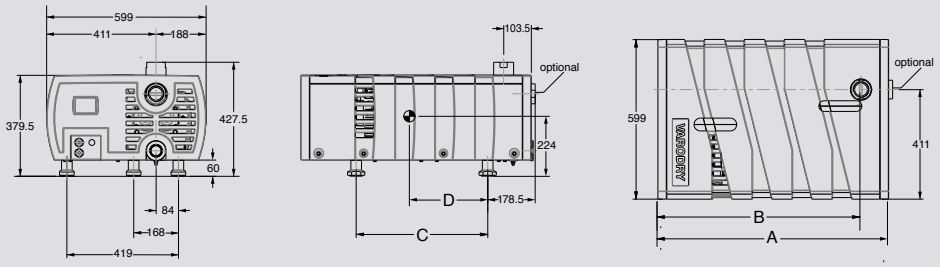
The bearings can be on-site exchanged by trained Service technicians. Typical the bearing lifetime is 3 years. Complete pump-overhauls can be done in one of the many Leybold Global Service hubs.

To ensure the highest factory uptime, Leybold offers a fast "pump exchange". Our back-up pools offer flat pump exchange rates, to keep your production running at all times.



Technical Data
Ordering Information

Dimensions



Pump Type	A	B	C	D
VARODRY VD 65	773	670	402	253
VARODRY VD 100	865	762	494	294
VARODRY VD 160 / VD 200	1060	957	647	270

Technical Data

VARODRY			VD 65	VD 100	VD 160	VD 200
Max. pumping speed		m^3/h	65	100	140	180
Ultimate pressure	without gas ballast with standard gas ballast	mbar mbar	< 0.01 < 0.1		< 0.01 < 0.1	
Max. permissible inlet pressure		mbar	1050		1050	
Max. permissible outlet pressure (rel. to ambient)		mbar	200		200	
Water vapor tolerance	with standard gas ballast with big gas ballast	mbar mbar	20 60		20 60	
Water vapor capacity	with standard gas ballast with big gas ballast	kg/h kg/h	0.8 2	1.2 3.1	1.9 5.1	2.4 6.7
Noise level (with built-in silencer) at ultimate pressure (50 / 60 Hz)*		dB(A)	64 / 67	64 / 67	70 / 72	70 / 72
Permissible ambient temperature		°C	0 to +40			
Mains voltage			50 Hz, 200/400 V ±10%, 3 ph or 60 Hz, 230/460 V ±10%, 3 ph		50 Hz, 200/400 V ±10%, 3 ph or 60 Hz, 230/460 V ±10%, 3 ph	
Rated motor power		kW	1.5	2.2	3.0	4.0
Protection class			IP55		IP55	
Intake connection			G 2“		G 2“	
Outlet connection			G 1 1/2“		G 1 1/2“	
Weight, approx.		kg	90	100	130	130

Ordering Information	VD 65	VD 100	VD 160	VD 200
VARODRY, 50 Hz	111065V10	111100V10	111160V10	111200V10
VARODRY, 50 Hz, with purge gas module	111065V15	111100V15	111160V15	111200V15
VARODRY, 60 Hz	111065V11	111100V11	111160V11	111200V11
VARODRY, 60 Hz, with purge gas module	111065V16	111100V16	111160V16	111200V16

Accessories	
Inlet non return valve G 2“ (for inlet pressures > 1 mbar)	111005A15
Inlet Adapter	
DN 40 ISO-KF, 20 mm	111005A20
G 1 1/4“, 10 mm	111005A21
NPT 1 1/4 -11.5, 10 mm	111005A22
NPT 2-11.5, 35 mm	111005A23
DN 63 ISO-K, 27 mm	111005A24
DN 40 ISO-KF, 20 mm	111005A30
NPT 1 1/2-11.5, 30 mm	111005A31
Casters	111005A50

*According to DIN EN ISO 2151

Leybold

Pioneering products. Passionately applied.

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Technische Änderungen vorbehalten